

**REMARKS/ARGUMENTS**

Applicants wish to thank the Examiner for the review of the present application. Applicants have amended claims 1, 3, 4, 6-8, 10-12, 15, and 16 and have added new claims 34-93. Additionally, claims 2 and 23-33 have been cancelled. Claims 1, 3-22, and 34-93 are now pending in the application. No new matter has been added.

**Double Patenting**

The Office Action provisionally rejects claims 1-33 under 35 U.S.C. 101 as claiming the same invention as that of claims 1-12 of copending Application 09/953373. Applicants wish to note that application 09/953373 is now issued patent 7,184,814. Applicants would also like to note that original claims 23-33 were cancelled and Applicants only discuss this rejection with respect to claims 1-22. Applicant respectfully traverses the same-invention type double patenting rejection because the amended claims presented in the present application are of different scope from those of the issued patent. Claim 1 of the '814 patent requires in part "obtaining a three-dimensional volumetric representation of cartilage of said joint" and "electronically determining at least one margin between damaged or diseased cartilage and normal cartilage in three dimension." Claim 1 of the present application, as amended, requires in part "electronically evaluating said image data to obtain information about the three-dimensional geometry of the joint, wherein electronically evaluating includes determining or extracting three or more surface points on at least one of a cartilage or subchondral bone surface, the surface points being non-coplanar." Since amended claim 1 of the present application is not identical in subject matter to

claim 1 of the '814 patent, there is no statutory basis for a same invention-type double patenting rejection. See MPEP § 804 II.A. Additionally, claims 3-9 (claim 2 has been cancelled) depend from claim 1 of the present application, and are, therefore allowable over claims 2-11 of the '814 patent for at least the same reasons.

In a similar manner as amended claim 1, amended claim 10 requires "electronically evaluating said image data to obtain information about a degeneration pattern of the joint, wherein electronically evaluating includes determining three or more points, the points being non-coplanar." Therefore, amended claim 10 is allowable over claims 1-12 of the '841 patent for at least the same reasons. Moreover, claims 11-22, which depend from claim 10 are allowable over claims 1-12 of the '814 patent for at least the same reasons.

The Office Action also rejects claims 1-33 under 35 U.S.C. 101 as claiming the same invention as that of claims 1-140 of prior U.S. Patent Number 7239908 (Application Number 09/662,224). Applicant respectfully traverses the same-invention type double patenting rejection because the amended claims presented in the present application are of different scope from those of the issued patent. As discussed above, amended claim 1 of the present application requires, in part, "electronically evaluating said image data to obtain information about the three-dimensional geometry of the joint, wherein electronically evaluating includes determining or extracting three or more surface points on at least one of a cartilage or subchondral bone surface, the surface points being non-coplanar." Clearly none of the claims within the '908 patent include this limitation. Accordingly, because amended claim 1 of the present application is not identical in subject matter to claim 1 of the '908 patent, there is no statutory basis for a same invention-type double patenting rejection. See MPEP § 804 II.A. Moreover, claims 3-9 (claim 2 has been cancelled) depend from claim 1 of the present application, and are, therefore allowable over claims 1-140 of the '908 patent.

In a similar manner as amended claim 1, amended claim 10 requires "electronically evaluating said image data to obtain information about a degeneration pattern of the joint, wherein electronically evaluating includes determining three or more points, the points being non-coplanar." Therefore, amended claim 10 is allowable over claims 1-140 of the '841 patent for at least the same reasons as discussed above. Moreover, claims 11-22, which depend from

claim 10 are allowable over claims 1-140 of the '908 patent for at least the same reasons.

Claim Objections

The Office Action objects to claims 30 and 31 because reference is made to "steps (a) through (b)" and steps (a) and (b) are not found in claim 26. As mentioned above, Applicants have cancelled claims 30 and 31. Accordingly, Applicants believe that this objection is now moot.

35 U.S.C. §102(b)

The Office Action rejects claims 1-3, 5, 7, 8, 10, 11, 13, 15, 16, 23, 24, and 26-33 as being anticipated by U.S. Patent Number 5,320,102 (Paul et al., hereinafter "Paul").

Claim 1 defines, in relevant part, a method of treating a human with joint disease. Among other things the method includes obtaining electronic image data of a joint and electronically evaluating the image data to obtain information about the three-dimensional geometry of the joint. Electronically evaluating includes determining or extracting three or more non-coplanar surface points on at least one of cartilage or subchondral bone surface. The method then determines a therapy based on the information.

Paul fails to teach such a method. Rather, Paul teaches a method for diagnosing proteoglycan deficiency in cartilage based on an MRI Image. In particular, Paul receives image data at a workstation and a user chooses a region of interest. Paul then records the gray-scale illumination representative of the MR signal intensity of individual pixels selected by the user. The pixel intensities may be processed (i.e., averaged or interpolated) and plotted (col. 5, lines 1-40). Nowhere does Paul teach electronically evaluating image data, including determining or extracting surface points that are non-coplanar, to obtain information about the three-dimensional geometry of the joint. In fact, because Paul deals with only a single two-dimensional MRI slice at a given time, the pixels chosen by the user cannot be non-coplanar. Rather, they must be coplanar at least with respect to the plane of the two-dimensional image. This is very different from claim 1, which, as discussed above, requires determining or extracting non-coplanar surface points. Accordingly, claim 1 is allowable over Paul. Moreover,

claims 3, 5, 7, and 8, which depend from claim 1, are allowable for at least the same reasons.

In a manner similar to claim 1, claim 10 also defines a method that electronically evaluates image data including determining three or more points that are non-coplanar. Accordingly, claim 10 is allowable over Paul for the same reasons as discussed above with regard to claim 1. Moreover, claims 11, 13, 15, and 16 which depend from claim 10 are also allowable for at least the same reasons. As mentioned above, Applicants have cancelled claims 23-33. Therefore, Applicants believe that the rejection is now moot with respect to these claims.

35 U.S.C. §103(a)

The Office Action rejects claims 4, 6, 9, 12, 14, 17-19, 21-22, and 25 as being unpatentable over Paul in view of U.S. Patent Number 6,161,080 (Auoni-Ateshian et al., hereinafter “Auoni-Ateshian” in further view of U.S. Patent number 6,835,377 (Goldberg et al., hereinafter “Goldberg”). As mentioned above, Applicants have cancelled claim 25. Therefore, Applicants discuss this rejection only with regard to claims 4, 6, 9, 12, 14, 17-19, and 21-22.

As dependent claims of claims 1 and 10, claims 4, 6, 9, 12, 14, 17-19, and 21-22 also define methods that electronically evaluate image data to obtain information about the three-dimensional geometry of the joint (or degeneration pattern for claim 10). The electronic evaluation includes determining or extracting three or more non-coplanar points. Accordingly, claims 4, 6, 9, 12, 14, 17-29, and 21-22 are allowable over Paul for at least the same reasons as discussed above with respect to claims 1 and 10.

Additionally, Auoni-Ateshian fails to teach the deficiencies of Paul. In particular, nowhere does Auoni-Ateshian teach or suggest electronically evaluating electronic image data including determining or extracting three or more non-coplanar points in order to obtain information about the three-dimensional geometry (claim 1) or degeneration pattern (claim 10).

Moreover, Goldberg also fails to teach the deficiencies of Paul. Instead, Goldberg relates to a stem cell approach for cartilage regeneration. Nowhere does Goldberg teach or suggest electronically evaluating an electronic image data including determining or extracting three or more non-coplanar points in order to obtain information about the three-dimensional geometry (claim 1) or degeneration pattern (claim 10). Therefore, because Paul, Auoni-Ateshian, and

Goldberg fail to teach or suggest, alone or in combination, all limitations of the pending claims, the combination cannot make the claims obvious. Accordingly, claims 4, 6, 9, 12, 14, 17-19, and 21-22 are allowable over the combination of Paul, Auoni-Ateshian, and Goldberg.

The Office Action rejects claim 20 as being unpatentable over Paul in view of U.S. Patent Auoni-Ateshian in further view of Goldberg and in further view of U.S. Patent Number 6,175,655 (George III et al., hereinafter "George").

As a dependent claim of claim 10, claim 20 also defines a method that electronically evaluates, including determining three or more non-coplanar points, an image data to obtain information about a degeneration pattern. Accordingly, claim 20 is allowable over Paul, Auoni-Ateshian, and Goldberg, alone or in combination, for at least the same reasons as discussed above with respect to claims 1 and 10.

Additionally, George also fails to teach the deficiencies of Paul, Auoni-Ateshian, and Goldberg. To the extent that George relates to images, nowhere does George teach or suggest electronically evaluating an image data, including determining three or more non-coplanar points, to obtain information about a degeneration pattern. Accordingly, because Paul, Auoni-Ateshian, Goldberg, and George fail to teach or suggest, alone or in combination, all limitations of claim 20, the combination cannot make the claim obvious. Therefore, claim 20 is allowable over the combination.

It is believed that the application is now in order for allowance and Applicants respectfully request that a notice of allowance be issued. Applicants believe that a three month extension of time is required, and hereby request that the associated fees be charged to Deposit Account No. 19-4972. Applicants also request that any other fee required for timely consideration of this application be charged to Deposit Account No. 19-4972. Applicants also request that the examiner contact applicant's attorney, Jonathan Lovely, if it will assist in processing this application through issuance.

Respectfully submitted,

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